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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,226	08/22/2003	Izaya Okae	112857-424	1391

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EXAMINER	
ECHELMEYER, ALIX ELIZABETH	
ART UNIT	**PAPER NUMBER**
1745	

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,226	OKAE ET AL.	
	Examiner	Art Unit	
	Alix Elizabeth Echelmeyer	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response

1. This Office Action is in response to Applicants' arguments filed August 25, 2006. Applicants filed an English translation of their Japanese application, establishing a priority date of August 27, 2002 and overcoming the rejection of May 25, 2006 using Sasaki et al. (US 2003/0124423). Claims 1-5 are pending and are rejected for the reasons given below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. (US 2003/0082448) in view of Sasaki et al. (JP 2002-260722).

Regarding claim 1, Cho et al. teach a surface treatment layer on the active material for the positive electrode battery of the formula MXO_k where the layer includes Li and Fe, P is M, and k can range from 2 to 4 (abstract, [0022], [0059]). Cho et al. teach that a surface treatment leads to better thermal stability characteristics ([0145]).

Cho et al. also teach that lithium nickelate is advantageous as the active material layer since it has a low cost and high discharge capacity ([0010]). In Table I, Cho et al. specifically teach compound (13), which matches that of the instant invention.

As for claim 3, the particle size of the active material is preferably 3 μm to 15 μm ([0071]).

Regarding claim 4, Cho et al. teach that the thickness of the coating should be between 0.01 μm and 2 μm ([0058]).

Cho et al. fail to teach specifically an olivine compound for the coating.

Sasaki et al. teach the use of olivine $LiFePO_4$, which meets the requirements of the coating taught by Cho et al., in the positive electrode of a lithium secondary battery.

With further regard to claim 3, the particle size is between 0.2 μm and 0.8 μm ([0025]). The ratio of the largest of Sasaki et al., 0.8 μm, to the smallest particle of active material as taught by Cho et al., 3 μm, (see above) is 0.267, which is less than one half.

Sasaki et al. further teach that the use of olivine $LiFePO_4$ is advantageous in lithium secondary batteries since it has a large capacity and excellent output characteristics ([0015]).

Therefore, it would have been obvious to use olivine $LiFePO_4$ as taught by Sasaki et al. as the positive electrode active material coating of the battery of Cho et al. in order to produce lithium secondary batteries with large capacity and excellent output characteristics.

With regard to claim 5, the secondary battery of either Cho et al. or Sasaki et al. would include a negative electrode containing metal. Li, Li alloy, or a material allowing Li to be doped or undoped, a nonaqueous electrolyte, and the nickelate/olivine structure discussed above, since the negative electrode and electrolyte would be necessary in order to create a current from the battery.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cho et al. in view of Sasaki et al. as applied to claim 1 above, and further in view of Negoro et al. (US Patent Number 6,156,459).

The teachings of Cho et al. or Sasaki et al. as discussed above are incorporated herein.

Cho et al. or Sasaki et al. teach that the coating of $LiFeO_4$ should be thin to prevent deterioration of capacity but are silent on the weight percent of $LiFeO_4$ to lithium nickelate substrate.

Negoro et al. teach that the conducting agent of the positive-active material of a secondary battery should be between 6 and 50 weight percent (3:49-54).

It is desirable to keep the amount of coating low in order to prevent deterioration of capacity.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the weight percent guideline given by Negoro et al. in the coating of Sasaki et al. in view of Cho et al. in order to prevent deterioration of capacity of the positive active electrode material.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alix Elizabeth Echelmeyer whose telephone number is 571-272-1101. The examiner can normally be reached on Mon-Fri 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's trainer, Susy N. Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alix Elizabeth Echelmeyer
Examiner
Art Unit 1745

aee

Susy Tsang Foster

SUSY TSANG-FOSTER
PRIMARY EXAMINER